

## CLAIMS

What is claimed is:

1. A method for communicating a Physical Layer (PHY) mean square error (MSE) to an upper layer device driver, comprising the steps of:
  - (a) receiving a frame by the PHY;
  - (b) computing a MSE for the frame by the PHY;
  - (c) sending the MSE and the frame to a Media Access Control (MAC);
  - (d) inserting the MSE into a frame status frame (FSF) associated with the frame by the MAC; and
  - (e) sending the frame and the FSF to the upper layer driver software.
2. The method of claim 1, further comprising:
  - (f) extracting the MSE from the FSF by the upper layer driver software; and
  - (g) computing an average mean square error (AMSE) based on the MSE by the upper layer software.
3. The method of claim 2, wherein the computing step (g) comprises:
  - (g1) computing the AMSE for a history window of frames by the upper layer driver software.
4. The method of claim 2, further comprising:

- 2 (h) comparing the AMSE with a range of AMSE values for a payload encoding  
3 (PE);  
4 (i) transmitting at the PE if the AMSE is within the range; and  
5 (j) negotiating a change in the PE if the AMSE if not within the range.

1 5. A method for communicating a PHY MSE to an upper layer device driver,  
2 comprising the steps of:

- 3 (a) receiving a frame by the PHY;  
4 (b) computing a MSE for the frame by the PHY;  
5 (c) sending the MSE and the frame to a MAC;  
6 (d) inserting the MSE into a FSF associated with the frame by the MAC;  
7 (e) sending the frame and the FSF to the upper layer driver software.  
8 (f) extracting the MSE from the FSF by the upper layer driver software; and  
9 (g) computing an AMSE based on the MSE by the upper layer software.

1 6. The method of claim 5, wherein the computing step (g) comprises:  
2 (g1) computing the AMSE for a history window of frames by the upper layer  
3 driver software.

1 7. The method of claim 5, further comprising:  
2 (h) comparing the AMSE with a range of AMSE values for a PE;  
3 (i) transmitting at the PE if the AMSE is within the range; and

4 (j) negotiating a change in the PE if the AMSE is not within the range.

1 8. A method for communicating a PHY MSE to an upper layer device driver,  
2 comprising the steps of:

3 (a) receiving a frame by the PHY;

4 (b) computing a MSE for the frame by the PHY;

5 (c) sending the MSE and the frame to a MAC;

6 (d) inserting the MSE into a FSF associated with the frame by the MAC;

7 (e) sending the frame and the FSF to the upper layer driver software.

8 (f) extracting the MSE from the FSF by the upper layer driver software;

9 (g) computing an AMSE for a history window of frame based by the upper layer  
10 software;

11 (h) comparing the AMSE with a range of AMSE values for a PE;

12 (i) transmitting at the PE if the AMSE is within the range; and

13 (j) negotiating a change in the PE if the AMSE is not within the range.

1 9. A computer readable medium with program instructions for communicating a  
2 PHY MSE to an upper layer device driver, comprising the steps of:

3 (a) receiving a frame by the PHY;

4 (b) computing a MSE for the frame by the PHY;

5 (c) sending the MSE and the frame to a MAC;

6 (d) inserting the MSE into a FSF associated with the frame by the MAC; and

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- (e) sending the frame and the FSF to the upper layer driver software.

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